Appl. No. 10/632,788
Response Dated November 17, 2005
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**Amendments to the Claims**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ and a cooling unit, the furnace ~~heating unit~~ and the cooling unit each configured to selectively operate in an "on" state where each of the furnace ~~heating unit~~ and the cooling unit provide a relatively constant thermal output, or an "off" state, the method comprising:

determining whether the humidity in an inside space is above a predetermined humidity threshold, and if so;

operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states such that the furnace ~~heating unit~~ and the cooling unit each provide a relatively constant, unmodulated, thermal output.

2. (Currently Amended) The method of claim 1 wherein the step of operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states is only performed if the temperature in the inside space is below a predetermined cooling set point.

3. (Original) The method of claim 2 wherein only the cooling unit is operated if the temperature in the inside space is above the predetermined cooling set point, regardless of the humidity in the inside space.

4. (Currently Amended) The method of claim 1 wherein the cooling unit includes two or more cooling stages, the method further comprising the steps of:

not operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states if two or more cooling stages of the cooling unit are activated.

5. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ and a cooling unit, the furnace ~~heating unit~~ and the cooling unit each configured to selectively operate in unmodulated "on" state or an "off" states, the method comprising:

operating the cooling unit to satisfy a call for cooling the inside space, and after the call for cooling has been satisfied;

determining if the latent cooling demands have been met, and if not;

operating both the furnace ~~heating unit~~ and the cooling unit in their unmodulated "on" states such that the thermal output produced by the furnace ~~heating unit~~ is not modulated to match the thermal output of the cooling unit when the furnace ~~heating unit~~ and cooling unit are both in their "on" state.

6. (Currently Amended) A method according to claim 5, further comprising the steps of:

deactivating the furnace ~~heating unit~~ and the cooling unit once the latent cooling demands have been satisfied.

7. (Currently Amended) A method according to claim 5, further comprising the steps of:

deactivating the furnace ~~heating unit~~ while maintaining the cooling unit if a subsequent call for cooling is provided.

8. (Currently Amended) A method according to claim 5, further comprising the steps of:

deactivating the furnace ~~heating unit~~ and the cooling unit if the latent cooling demand has been satisfied and there is no current call for cooling; and

deactivating the furnace ~~heating unit~~ while maintaining the cooling unit if the latent cooling demand has not yet been satisfied but a subsequent call for cooling is provided.

9. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ and a cooling unit, wherein the furnace ~~heating unit~~ and the cooling unit are each configured to selectively operate in an "on" state to produce a thermal output, or an "off" state, the HVAC system configured to have a cooling set point temperature, the method comprising:

determining a temperature at a location within an inside space;

determining a humidity at a location within the inside space;

selecting a mode in which to operate the HVAC system from among at least the following operating modes depending on the determined temperature and/or humidity:

selecting an "off" mode if the humidity is below a predetermined humidity threshold and the temperature is below a temperature that is related to the cooling set point temperature, wherein in the "off" mode the method includes operating both the furnace ~~heating unit~~ and the cooling unit in their "off" states;

selecting a "cooling" mode if the temperature is above a temperature that is related to the cooling set point temperature, wherein in the "cooling" mode the method includes operating the furnace ~~heating unit~~ in its "off" state and operating the cooling unit in its "on" state; and

selecting a "drying" mode if the humidity is above the predetermined humidity threshold and the temperature is below a temperature that is related to the cooling set point temperature, wherein in the "drying" mode the method includes operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states such that the combined thermal output of the furnace ~~heating unit~~ and the cooling unit is not zero or substantially zero.

10. (Original) The method of claim 9 wherein the cooling unit includes a first cooling stage and a second cooling stage, the method further comprising the steps of:

predicting or determining whether the first stage of the cooling unit can provide adequate sensible cooling to the inside space; and

selecting the "off" mode if the humidity is below the predetermined humidity threshold

and the temperature is below a temperature that is related to the cooling set point temperature;

selecting the "cooling" mode and activating only the first stage of the cooling unit if the humidity is below the predetermined humidity threshold and the temperature is above the temperature that is related to the cooling set point, and the predicting or determining step predicts or determines that the first stage can provide adequate sensible cooling for the inside space;

selecting the "cooling" mode and activating both the first stage and second stage of the cooling unit if the humidity is below the predetermined humidity threshold and the temperature is above the temperature that is related to the cooling set point, and the predicting or determining step predicts or determines that the first stage cannot provide adequate sensible cooling for the inside space;

selecting the "drying" mode and activating only the first stage of the cooling unit if the humidity is above the predetermined humidity threshold and the temperature is above the temperature that is related to the cooling set point.

11. (Original) The method of claim 10 further comprising the step of:

selecting the "cooling" mode and activating both the first stage and the second stage of the cooling unit if the humidity is above the predetermined humidity threshold and the temperature is above the temperature that is related to the cooling set point, and the predicting or determining step predicts or determines that the first stage cannot provide adequate sensible cooling for the inside space.

12. (Currently Amended) In an HVAC system having a <u>forced air furnace</u> ~~heating unit~~ sized to heat an inside space under an expected heating load and a cooling unit sized to cool the inside space under an expected cooling load, the improvement comprising:

a controller adapted to determine whether the space is above a predetermined humidity threshold; and if so, to operate both the <u>furnace</u> ~~heating unit~~ and the cooling unit in unmodulated states that are not dependent on an output temperature of air provided to the inside space.

13. (Currently Amended) An HVAC system according to claim 12, wherein the controller is further adapted to determine if the temperature of the inside space is above a predetermined temperature, and if so, activating the cooling unit and not the furnace ~~heating unit~~, regardless of the humidity in the inside space.

14. (Currently Amended) An HVAC system according to claim 12, wherein the controller is adapted to operate both the furnace ~~heating unit~~ and the cooling unit only if the temperature in the inside space is below a predetermined cooling set point.

15. (Currently Amended) An HVAC system according to claim 14, wherein the controller is adapted to operate the cooling unit and not the furnace ~~heating unit~~ if the temperature in the inside space is above a predetermined cooling set point.

16. (Currently Amended) A method of updating an HVAC system having a forced air furnace ~~heating unit~~ sized to heat an inside space under an expected heating load, a cooling unit sized to cool the inside space under an expected cooling load, and a controller, ~~wherein the heating unit is a forced air furnace,~~ the method comprising:

updating the controller to determine whether the humidity in the inside space is above a predetermined humidity level; and if so, to operate both the furnace ~~heating unit~~ and the cooling unit together in unmodulated "on" states.

17. (Currently Amended) A method according to claim 16, wherein the updating step further updates the controller to determine whether the temperature of the inside space is above a predetermined temperature, and if so, only activating the cooling unit and not the furnace ~~heating unit~~, regardless of the humidity in the inside space.

18. (Currently Amended) A method according to claim 16, wherein the updating step further updates the controller to operate both the furnace ~~heating unit~~ and the cooling unit only if

the temperature in the inside space is below a predetermined cooling set point.

19. (Currently Amended) A computer-readable medium having stored thereon a computer program for controlling an HVAC system that services an inside space which, when executed by a controller, is capable of performing the following steps:

determining whether the humidity in the space is above a predetermined humidity level, and if so;

activating both a forced air furnace ~~heating unit~~ and a cooling unit of the HVAC system such that the activated furnace ~~heating unit~~ provides an unmodulated heat output.

20. (Currently Amended) A computer-readable medium according to claim 19, wherein the computer program when executed by the controller, is also capable of performing the follow step:

determining if the temperature of the inside space is above a predetermined temperature, and if so;

activating only the cooling unit and not the furnace ~~heating unit~~.

21. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ sized to heat an inside space under an expected heating load and a cooling unit sized to cool the inside space under an expected cooling load, the furnace ~~heating unit~~ and cooling unit configured to selectively operate in an "on" state or an "off" state, the method comprising:

determining whether the humidity in an inside space is above a predetermined humidity threshold, and if so;

operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states such that the furnace ~~heating unit~~ provides an un-modulated thermal output in the relatively constant "on" state.

22. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ sized to heat an inside space under an expected heating load and a cooling unit sized to cool the inside space under an expected cooling load, the method comprising:

determining whether the humidity in an inside space is above a predetermined humidity threshold, and if so;

operating both the furnace ~~heating unit~~ of the HVAC system and the cooling unit of the HVAC system such that the thermal output of the furnace ~~heating unit~~ of the HVAC system is not dependent on a temperature of an air stream exiting the HVAC system.

23. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~ and a cooling unit, the method comprising:

operating the cooling unit to satisfy a call for cooling for the inside space, and after the call for cooling has been satisfied;

determining if the latent cooling demands have been met, and if not;

operating both the furnace ~~heating unit~~ and the cooling unit such that the furnace ~~heating unit~~ provides an unmodulated thermal output.

24. (Canceled)

25. (Currently Amended) The method of claim 1, wherein the thermal output of the furnace ~~heating unit~~ and the thermal output of the cooling unit are not balanced when they are operated in their "on" states.

26. (Currently Amended) The method of claim 1, wherein an ambient temperature of the inside space is appreciably effected when both the furnace ~~heating unit~~ and cooling unit are operated in their "on" states.

27. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~, a cooling unit, and a controller, the furnace ~~heating unit~~ and the cooling unit configured to selectively operate in a "on" state or an "off" state, the method comprising:

determining whether the humidity in an inside space is above a predetermined humidity threshold, and if so;

operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states such that the thermal output of the furnace ~~heating unit~~ is not modulated by the controller when the furnace ~~heating unit~~ is in its "on" state.

28. (Currently Amended) A method of controlling an HVAC system having a forced air furnace ~~heating unit~~, a cooling unit, and a controller that controls the heating and cooling units, the method comprising:

configuring the controller to monitor conditions in an inside space of a building and to selectively operate the furnace ~~heating~~ and cooling unit[[s]] in an "on" or "off" state in response to one or more temperature set points, where in the "on" state the furnace ~~heating unit~~ is operated to provide a relatively constant thermal output to meet the expected heating load of the building and in an "on" state the cooling unit is operated to provide a relatively constant thermal output to meet the expected cooling load of the building;

determining whether the humidity in an inside space is above a predetermined humidity threshold, and if so;

operating both the furnace ~~heating unit~~ and the cooling unit in their "on" states such that the furnace ~~heating unit~~ and the cooling unit each provide a relatively constant, unmodulated, thermal output.